پوهنتون کاردان
KARDAN UNIVERSITY

MODERN PROGRAMMING LANGUAGE
(Python)

Starting Programming in Python
(Data Types/Structures)

Learning Outcome

- Should know about The python Data Types and Objects
- Should know about python Numbers
- Should learn about python Strings
- Should learn Lists in Python
- Should Learn Dictionaries in Python
- Should Know about python Tuples
- Should Know about Python Sets
- I/O with Python

The different built-in types

Name	Type	Description
Integers	int	Whole numbers, such as: **3 300 200**
Floating point	float	Numbers with a decimal point: **2.3 4.6 100.0**
Strings	str	Ordered sequence of characters: **"hello" 'Sammy' "2000" "楽しい"**
Lists	list	Ordered sequence of objects: **[10,"hello",200.3]**
Dictionaries	dict	Unordered Key:Value pairs: **{"mykey" : "value" , "name" : "Frankie"}**
Tuples	tup	Ordered immutable sequence of objects: **(10,"hello",200.3)**
Sets	set	Unordered collection of unique objects: **{"a","b"}**
Booleans	bool	Logical value indicating **True** or **False**

Numbers

- Two types:
  - Integers
  - Floating Numbers

```
my_income = 100

tax_rate = 0.1

my_taxes = my_income * tax_rate
```

Numbers

```
2 ** 100                    # 2 to the power 100, again
```

- For a floor division use double //
- 18//4
  - output: 4
- For reminder use %
- 18%4
  - Output: 2

Strings

- Strings are the ordered sequence of characters.

```
In [3]: print ('This is the program \t in Python \n Welcome!')
```

```
This is the program      in Python
 Welcome!
```

```
name='Saeed'
```

```
name +' Comming  from Home'
```

```
'Saeed Comming  from Home'
```

- You can concatenate the strings too.
- You can use either single (‘) or double quotes (“)

String

- To know about length of a String
  - len(String_name)
- To grab any index of a string
  - String_name[0] to grab first index
  - Ex: “Ahmad”, index 0 =A
  - A = “This is a String” A[-1]
  - # this is a comment in Python
- We can do String concatenation using plus (+) sign
  - Ex: str a=“Ahmad ”, str b=“ Naeem”
  - a+b= Ahmad Naeem
- String Multiplication
  - a=‘b’, a*4
  - a a a a

Contd..

- Finding a character

```
First='Samim'
First.find('a')
```

```
1
```

- Splitting the text

```
S='This is the first program in python'
```

```
S.split()
```

```
['This', 'is', 'the', 'first', 'program', 'in', 'python']
```

Print Statements

- Printing a string value in the console

```
a="Samim"

print(a+" is here!")
```

```
Samim is here!
```

- To print the values within the text

```
a='Ahmad'
b='Naeemi'
print("The name is {} and the Surname is {}".format(a,b))
```

```
The name is Ahmad and the Surname is Naeemi
```

- To print the values formatted

```
a='Ahmad'
b='Naeemi'
print(f"The name is {a} and the Surname is {b}")
```

```
The name is Ahmad and the Surname is Naeemi
```